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The Urban Evolution: Sticking Mumbai's Eastern Waterfront with the Incremental Symbiosis- Part 2

Betsy Daniel

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e olution and the in between

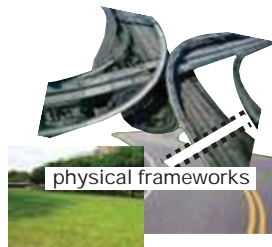
" patterns of occupation determine its form and perception. It is an indigenous urbanism, that has its particular local logic."

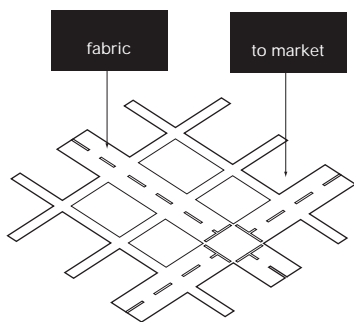
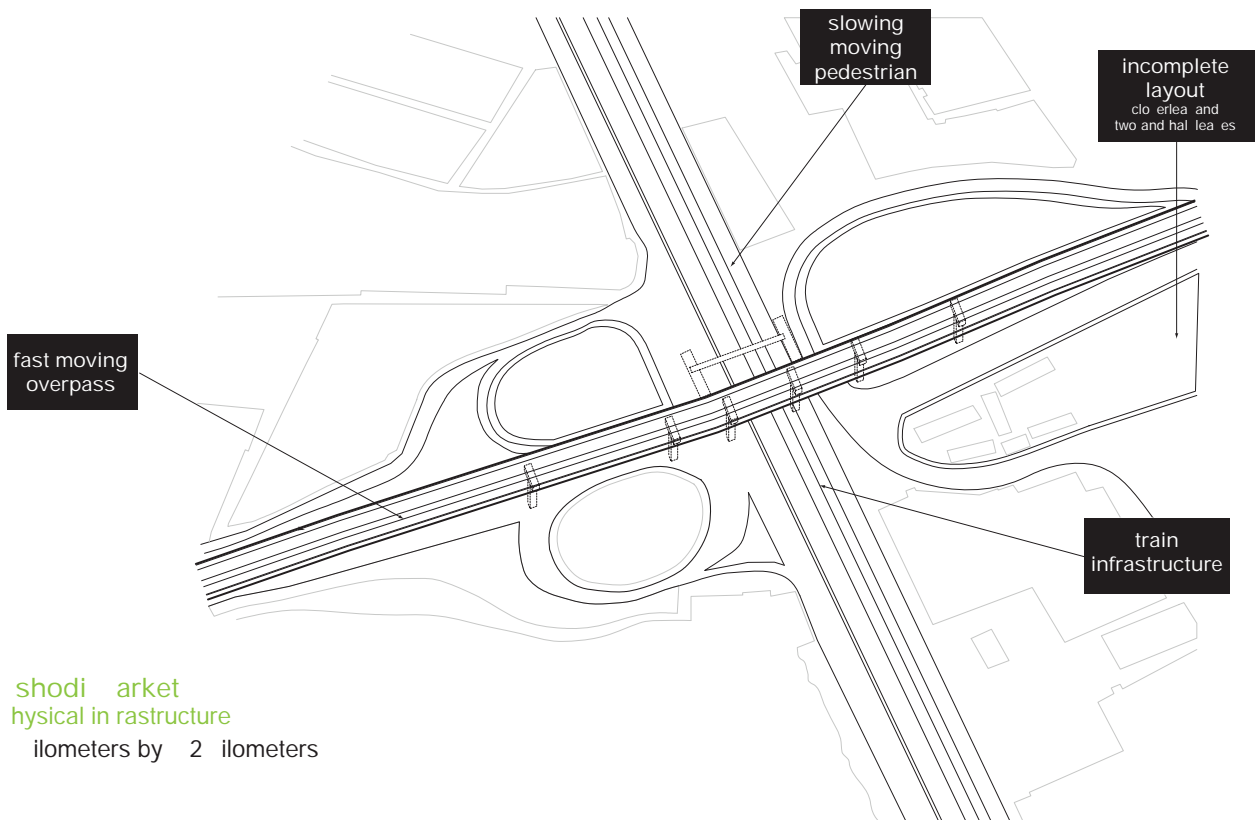
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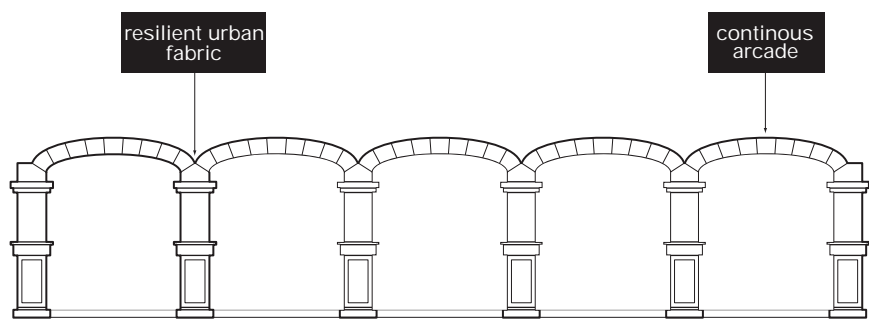
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 living in the endless city the Urban geopro
 ect by the London School of Economics and
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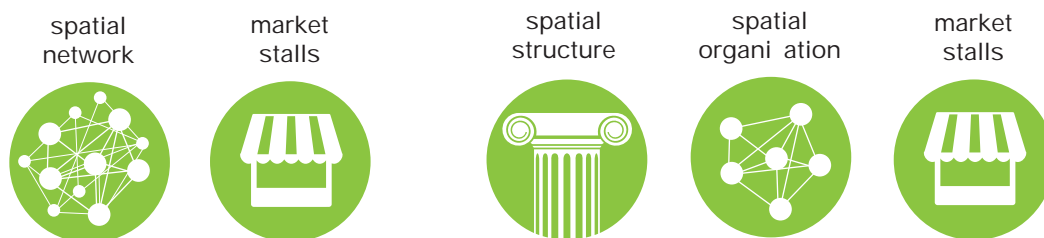


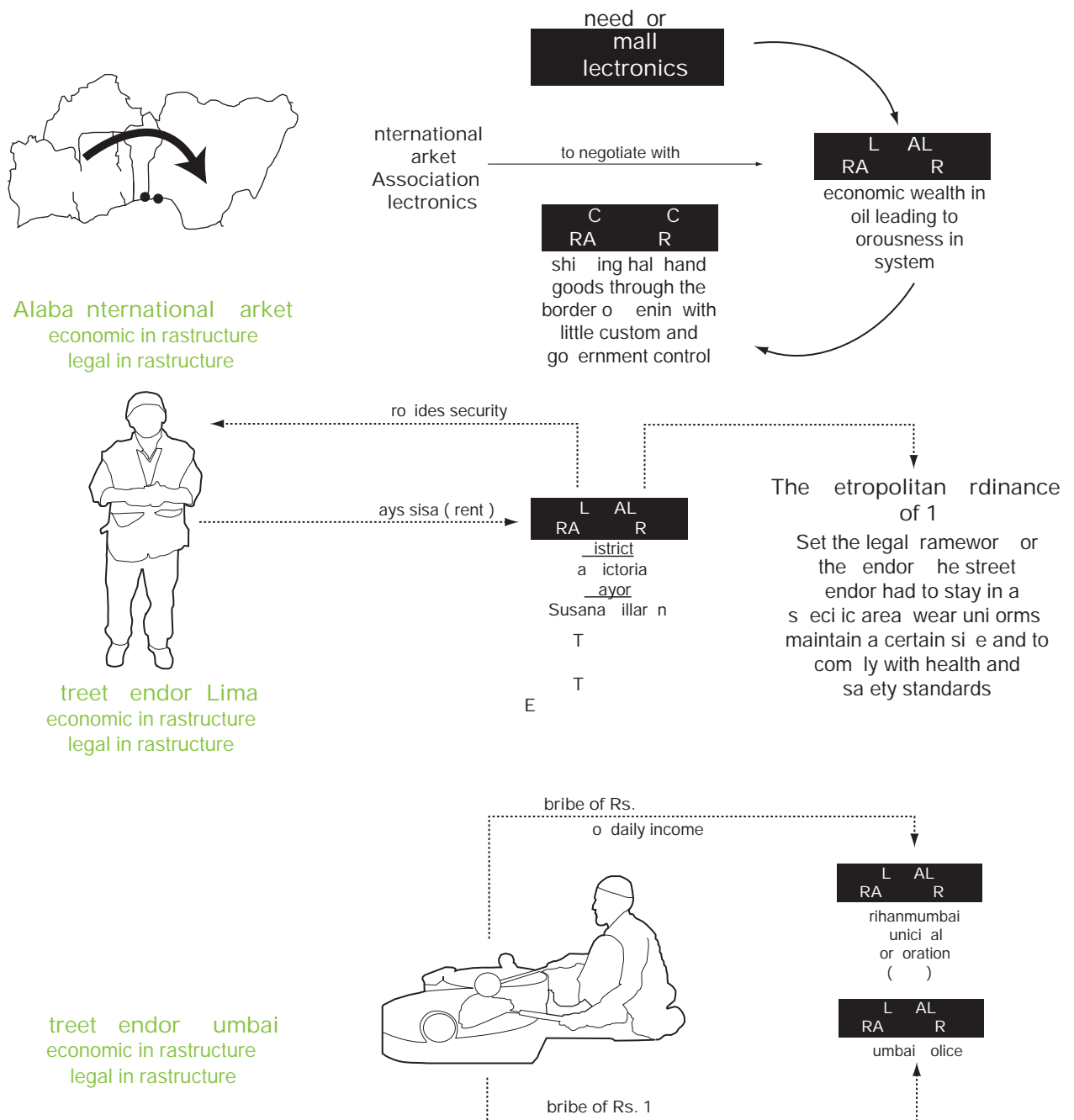


street endor
hysical in rastructure



ictorian Arcade Ba ar
hysical in rastructure





frameworks for occupation

making the case for Mumbai

stand the flows and nodes that
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I I r e node

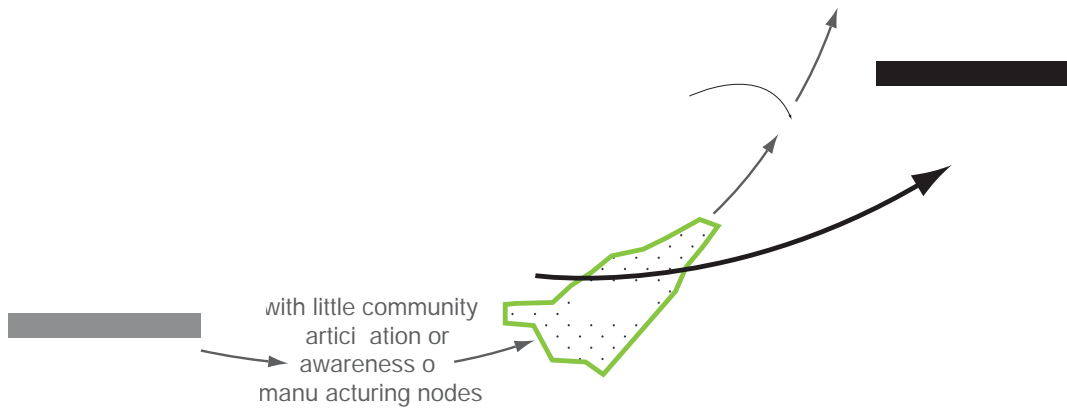
to be amplified. These relation

er ps ne r ni
n e in ormed deri in rom
e l im e ser ener ed
i . Perhaps it is an
evolutionary gesture of
comple ifying the production
by subverting and finding the
new urbanisms in the lines
between.

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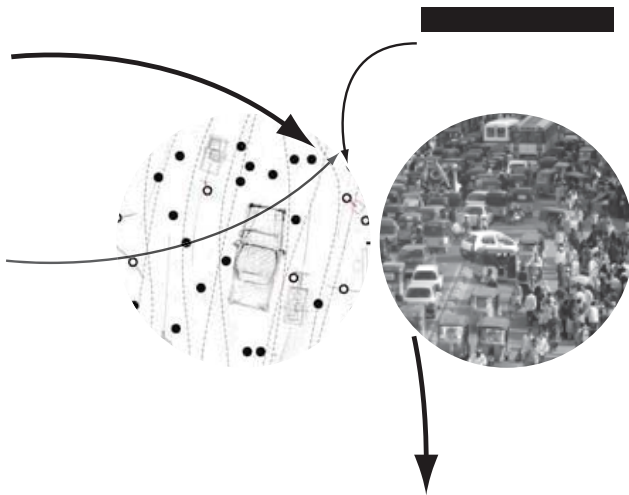
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there is to be a new urban
ism it would be about se arat
ing and identi ying entities but
about disco ering unnameable
hybrids it will no longer be ob
sessed with the city but with the
mani ulation o in rastructure or
**endless intensifications and
diversifications** shortcuts and
redistributions the rein ention
o sychological s ace Since
the urban is now er asi e ur
banism will ne er again be about
the new only about the more
and the "modified." *It will not be*
about the ci ili ed but about
underde elo ment



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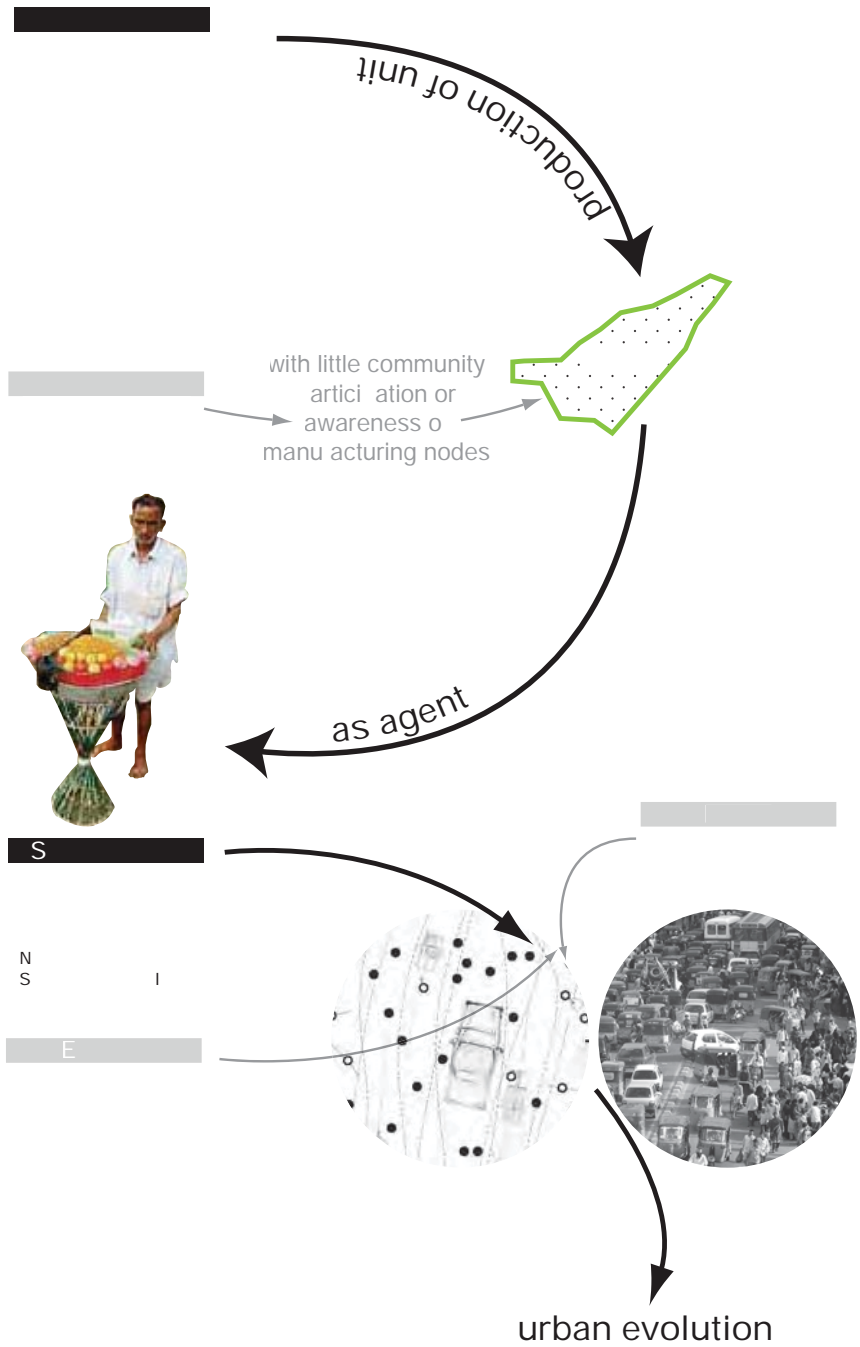
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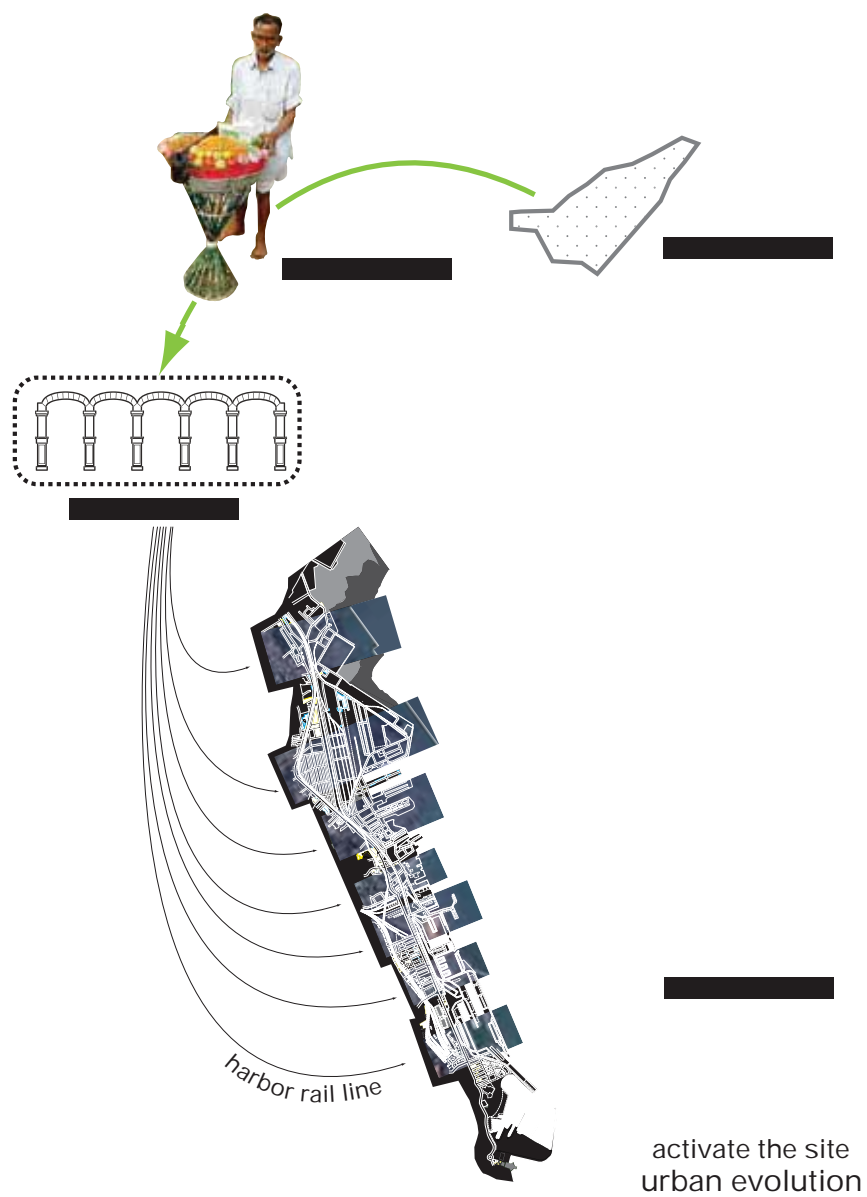


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ill this lead to
urban evolution



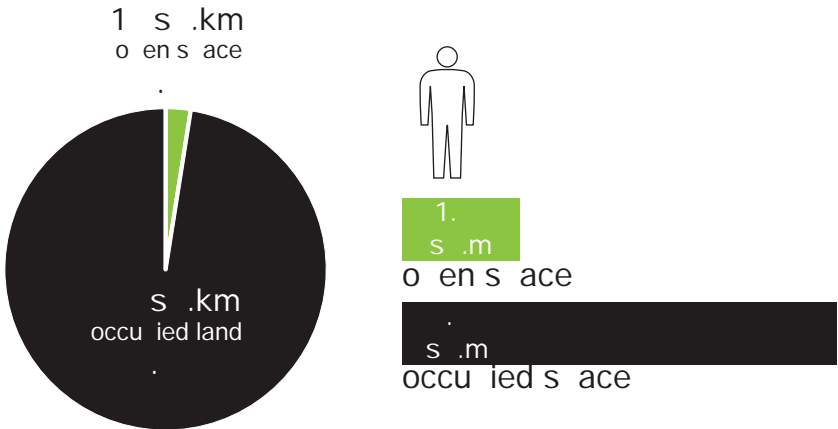
ow will this urban evolution
happen T

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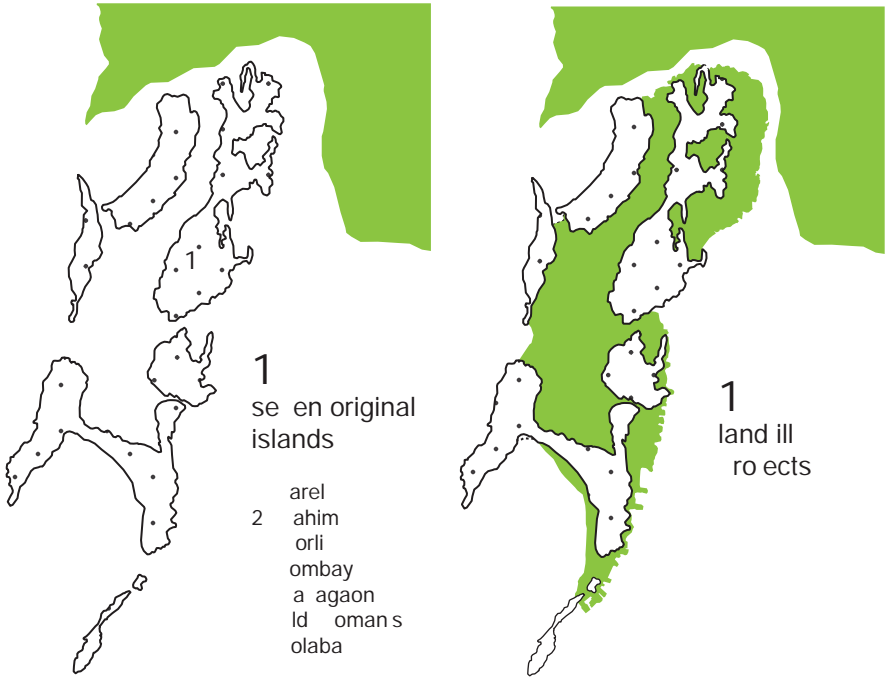
merely produce flexible frame

(reflecting the existing pattern of

density and
congestion



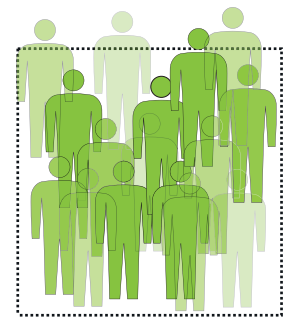
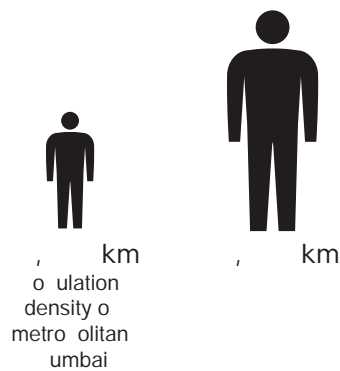
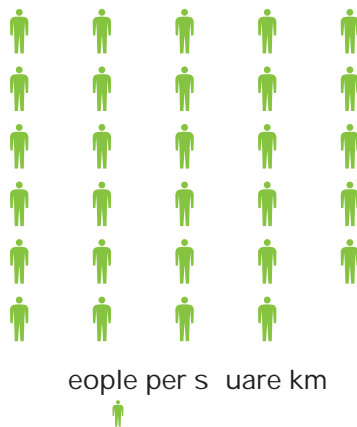
incremental
growth of Mumbai



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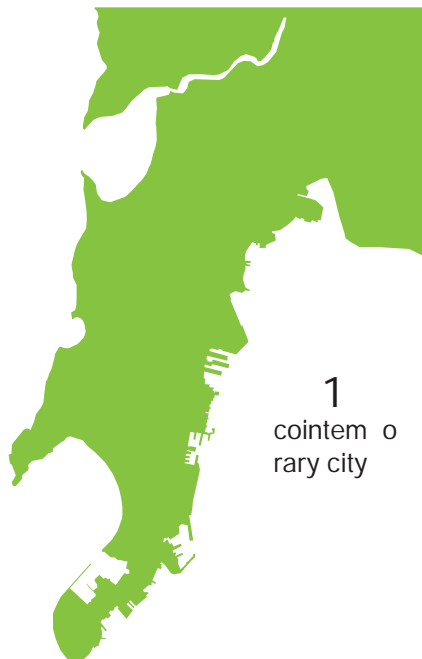


Rail passenger Density at peak Times
people per square meter

cotton mill industry

A large portion of the manufacturing sector was the cotton industry and port activities along the eastern waterfront. Here are this waterfront is named as the port area the original source and start of Mumbai as the city we see today.

This bay was the center of production, transportation and shipping which fueled the start of Mumbai's economy.



1
contemporary city

cotton mill industry

Mumbai Port Trust owns the eastern edge with complete control of cotton trade and most of the mills ceased production between 1920-30 but since these mills are located on prime real estate they are being erased for commercial and residential projects.

This edge remains industrialized and non-public with existing national operations, large petrochemical and industrial facilities now sit on the eastern edge.

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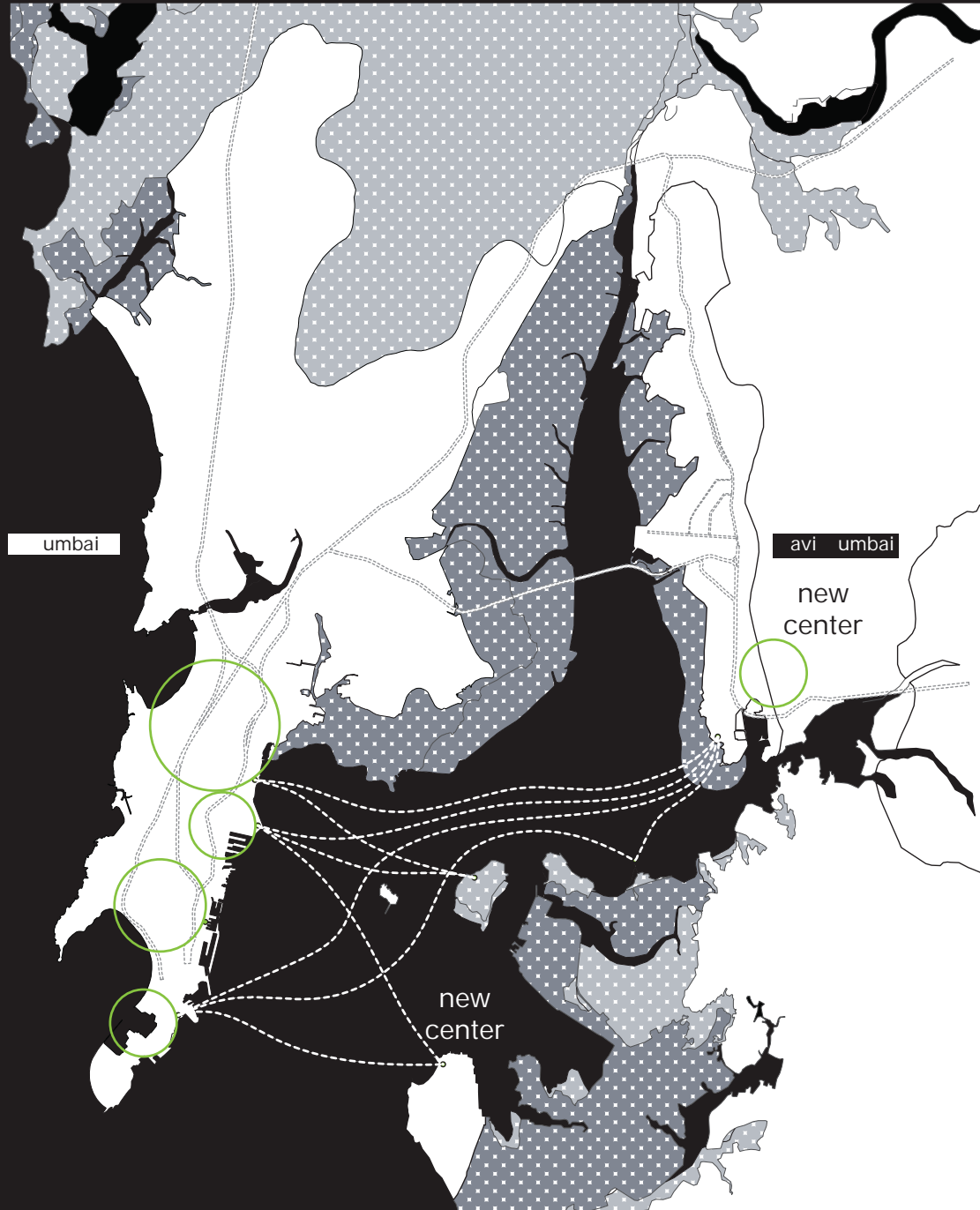
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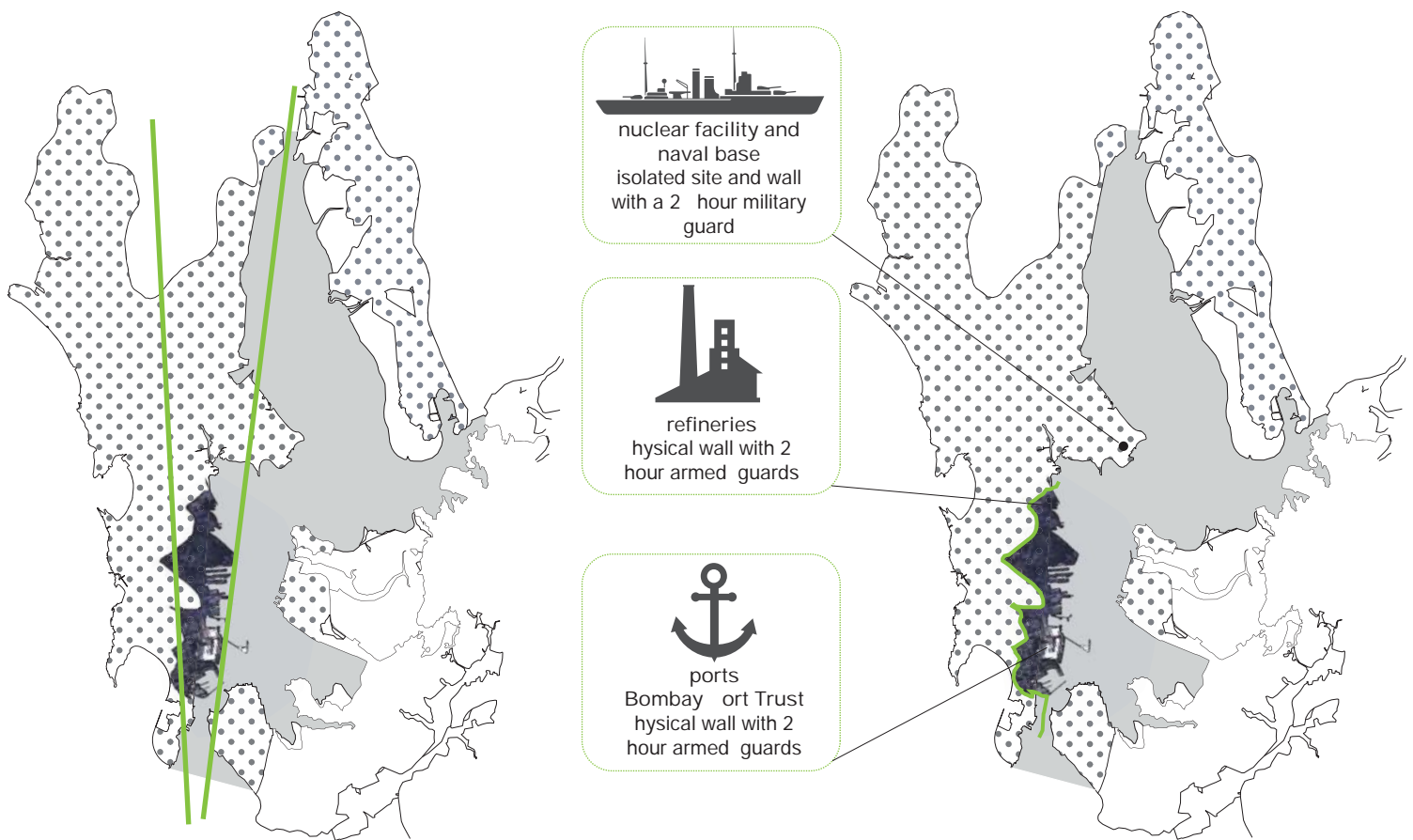
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hold or sustain this huge flux of

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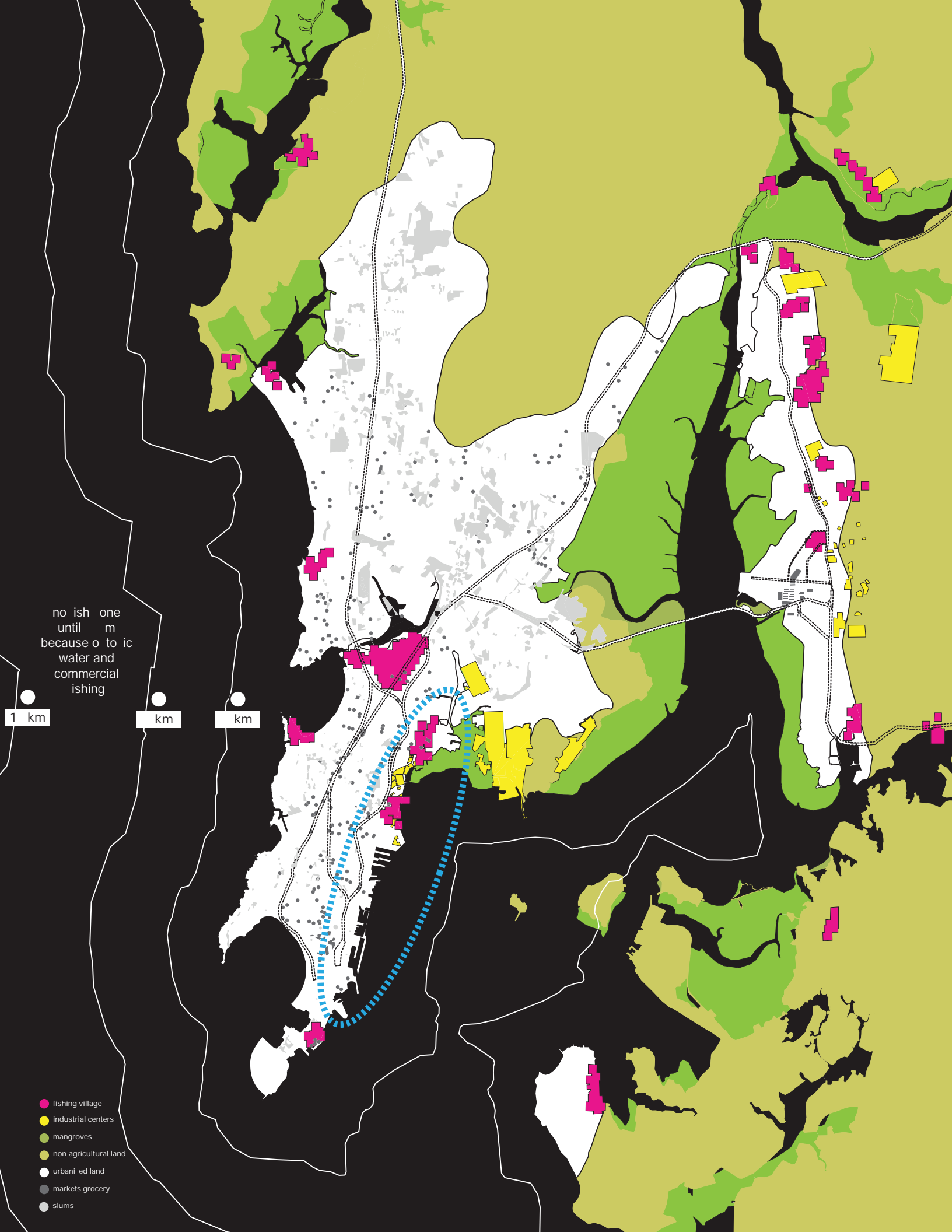
Correa created a Navi Mumbai across Mumbai's harbor. The urban plan was turning Mumbai to be centered around the harbor, centering the focus on a new eastern waterfront.

Navi Mumbai was built for 2 million people and has densified since its erection. However even with the eastern waterfront has become a large non space and interstitial one where disused and post industrial exists

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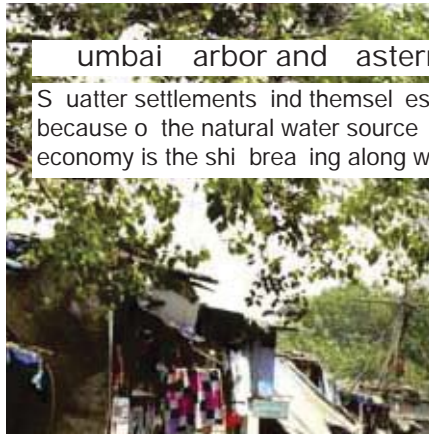
very day Mumbai is an assault on the individual's senses, from the time you get up, to the transport you take to go to work, to ***the offices you work in, to the forms of*** entertainment you are subjected to.

the scenario generator

An aerial photograph of a large port facility. In the foreground, a long pier extends into the water, with several large red gantry cranes and a blue crane visible. A large ship is docked at the pier. In the background, more cranes and ships are visible, along with a body of water and distant hills. The sky is overcast.

originally called the
“good bay”, it was not
part of a preconceived
master plan but rather of
impulsive and
incremental growth, built
out of landfills and
infrastructural services.

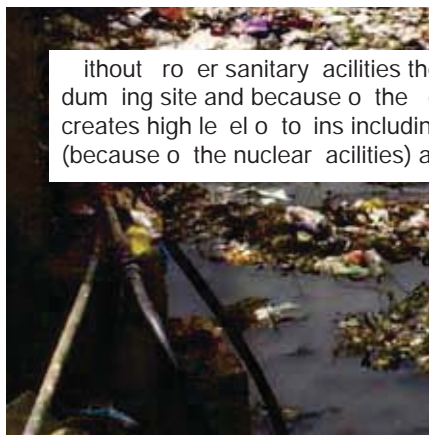
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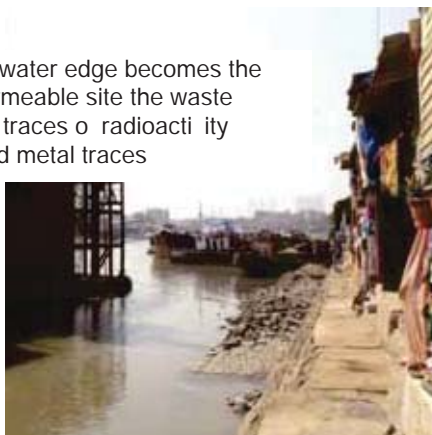
Mumbai harbor and eastern waterfront
 Slum settlements find themselves along this edge condition because of the natural water source. A large source of the informal economy is the shi breaching along with fishing villages

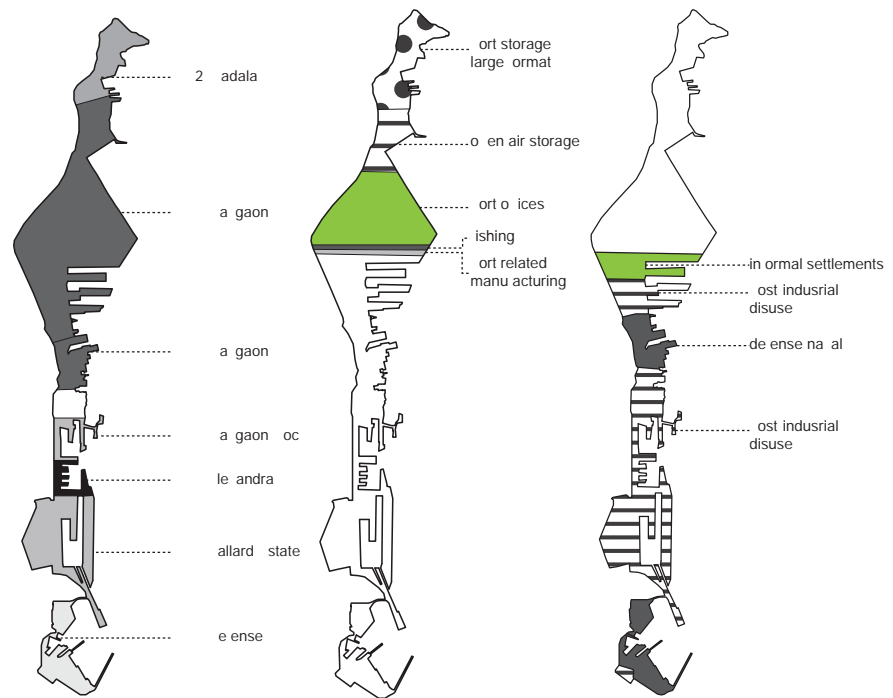


A large source of the informal economy is the shi breaching along with fishing villages. Abandoned mills occupy a hectare area adjacent to the waterfront along with seafood vendors on the eastern waterfront

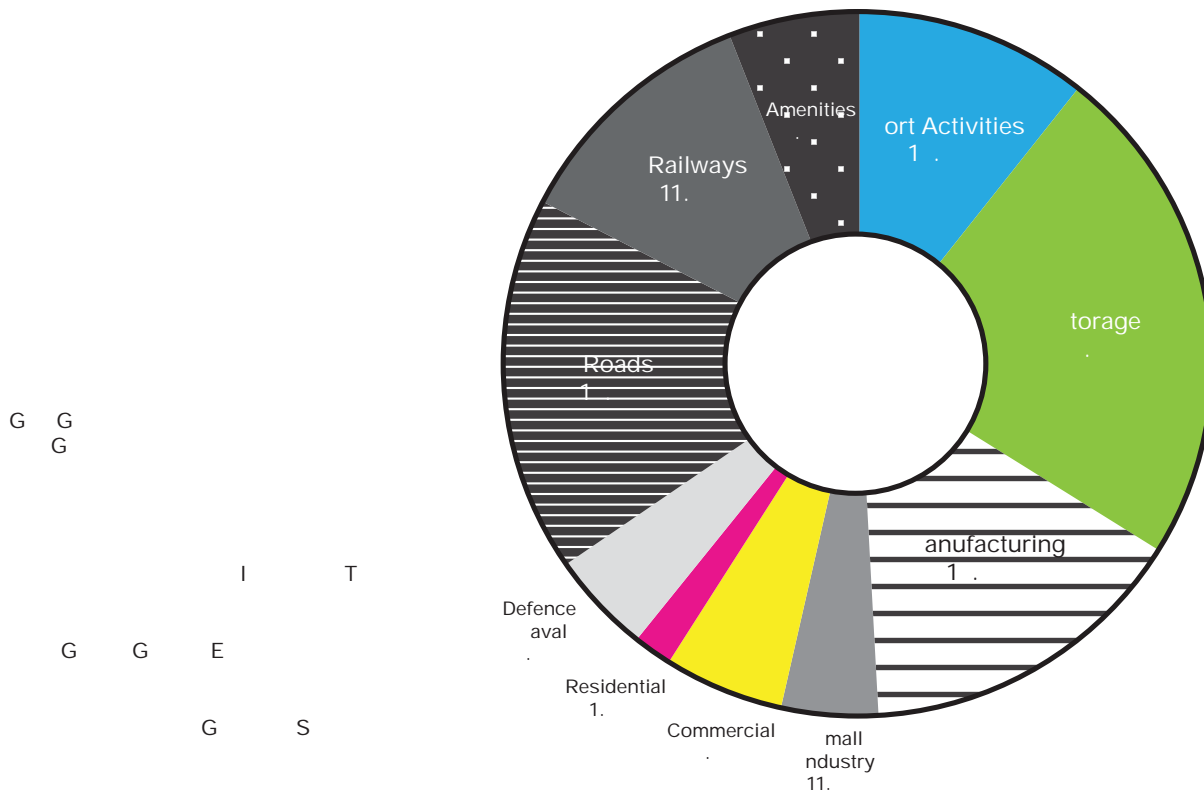


Without proper sanitary facilities the water edge becomes the dumping site and because of the permeable site the waste creates high levels of toxins including traces of radioactivity (because of the nuclear facilities) and metal traces





The commuter rail and the harbor's waterfront are frameworks for occupation and adaptation.



...ewri

Cotton reen

Reay Road

Dockyard Road

...andhurst Road

as id Bunder
tation

Chhatrapati
...hiva.i Terminus

- industrial
- slum cluster
- green and mangroves
- residential
- commercial
- vacant land
- social amenities offices



figure .1
 natural green space and adjacent
 slum centers versus slum centers
 along the commuter rail

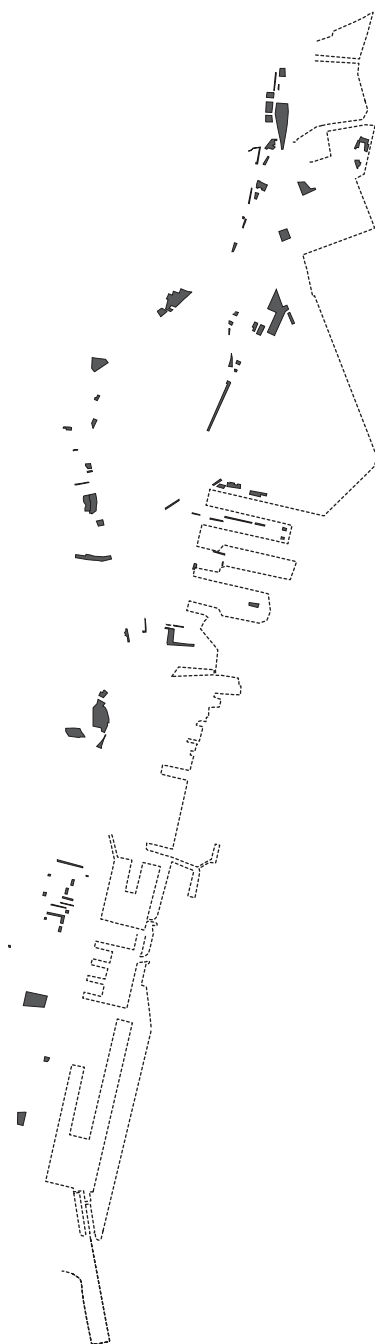


figure .
 eastern waterfront edge and
 slum centers

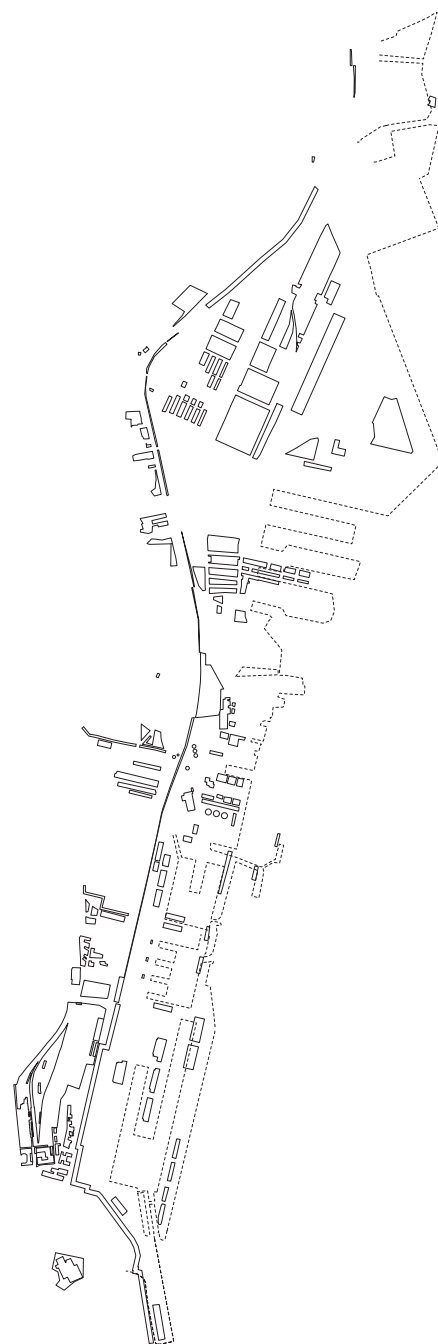


figure .
 eastern waterfront edge and
 industrial sectors (including mills
 ports storage etc)

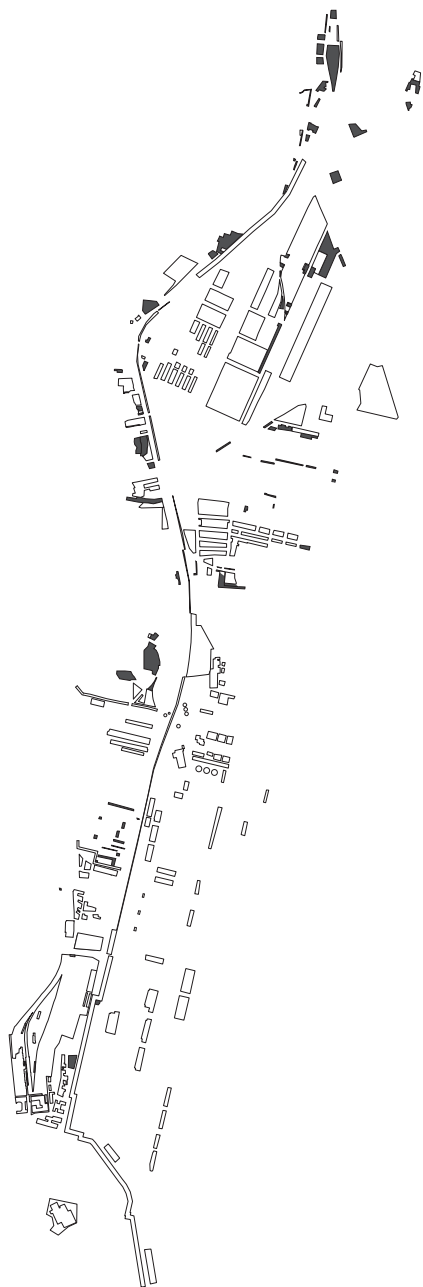


figure .
Scale o the industrial sectors
ersus slum sectors



figure .1
he commuter rail ser es as a
hard stream or slum sectors as
well as a physical network for
natural markets.

ector

Consituents

nfrastructure and nformal



Sewri

industries petrochemical industries
housing sewri oliwada chawls
 nyaneshwar ahar Shi ai agar
 ulmohar Society about am
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e tra lamingo migration

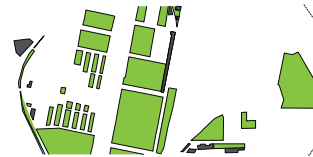


industrial
 2 s t
 slum sectors
 22 2 s t



Cotton reen

cotton and grain storage buildings
 disused number tbd

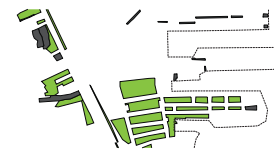


industrial
 2 s t
 slum sectors
 2 s t



Reay Road

community haru hana
industry traders or shi brea ing
 industry orging mill steel mar ets iron
 and steel storage in ormal scra metal
in ormal shi brea ing



industrial
 s t
 slum sectors
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Dockyard Road

a goan oc rime shi yard
 in ormal settlement

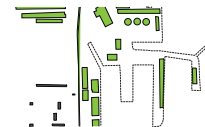


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andhurst Road

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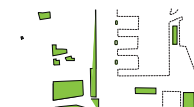


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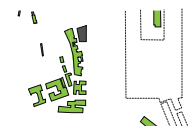


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Chhatrapati hiva i Terminus

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industrial
 s t
 slum sectors
 2 s t

cenarios

productive landscape

mangrove landscape urban arm
new productive market

urban shed infrastructure

dissolved cotton mill as a structure or
new barrier center floating armature

industrial symbiosis

steel arts recycling reduction of
new products new barrier

production

recycling and productive community

extended market

armature extending further or new
floating market

armature market

extending the tensile raw order market
onto docks spaces

floating armature



ven with one controlling entity, the Bombay
ort Trust, the eastern waterfront is a
collage of communities, bodies, and entities
that exist in various networks in a landscape
of amazing disconnections of use and
misuse.

Therefore the first phase will be constructing

and establishing new networks in this

disused landscape in the hopes that in the

second phase these productive symbiotic

networks will promote revitali ation.



teel arkets
arachi teel
Darshan nterprises
tandard ale nterprises
ational teel industries
nity teel Traders
teel storage
ssar teel
anesh teel
ndian teel
hradda teel

isting etworks

Raeby Road

Dharukhana

Raeby Road

the system D

each wor er earning less than a day

selling cut steel to big Industries



the rocess



cut to smaller pieces

storage

internet marketing

selling to manufacturer

selling to manufacturer

products

heavy material market

Legal rameworks
umbai ort rust
oc and eneral
m loyee s Union

the wor ers roctected with

informal workers
li e in haru hana with
no access to hysical
and legal ramewor s o
sanitation and water



no formal system
of informal
garbage sorting or
sanitation

Dharukhana

Big ndustry

TATA ower
lectric ower o oration

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ut ut
Unit oil
Unit coal
Unit coal
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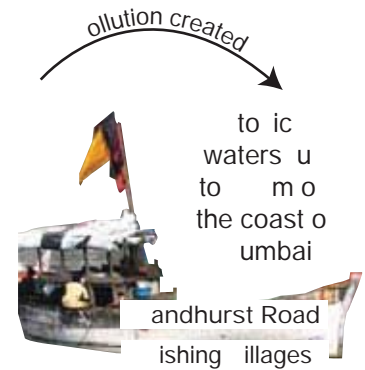
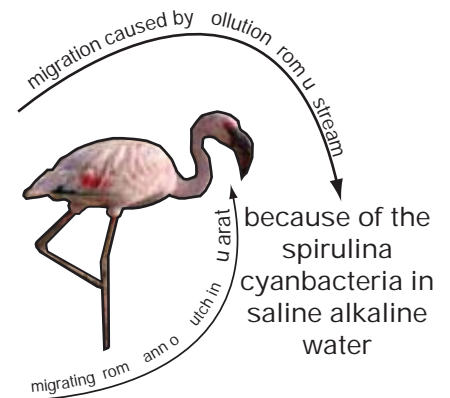
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orthonitrotoluene
n he ane cyclohe ane
cumene rubber sol ent
acetone oly ro ylene
tetramer
styrene monomer
ethylene dichloride
ethyl isobutyl etone
monoethylene glycol
diethylene glycol

Rashtriya Chemicals
ertilizer anu acturing

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blended agricultural ertilizer
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urea methanol
methyl amines
sodium nitrate
sodium nitrite
ammonium nitrate
ammonium bicarbonate



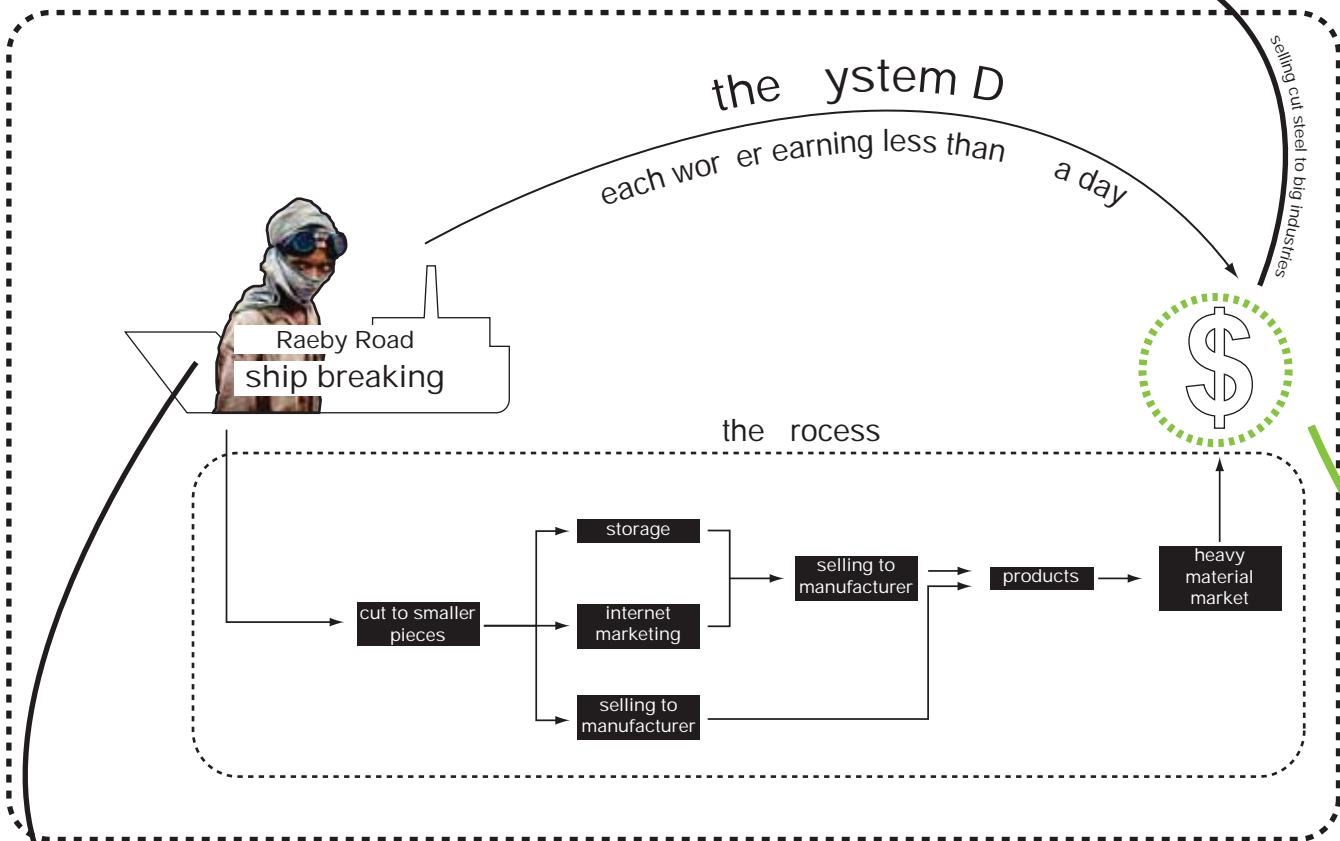
isting etworks

ewri

andhurst Road



- new scenario
- industrial symbiosis
- urban shed infrastructure
- Raeby Road
- Dharukhana
- Cotton reen



Legal frameworks
umbai port trust
oc and general
m loyees Union

informal workers
live in dhara khana with
no access to physical
and legal frameworks
sanitation and water



Big industry

TATA Power
Electric power generation

Footprint
Employee 2
Road 2

Unit oil
Unit coal
Unit coal
gas

Plant capacity
Utilization
Unit coal 2

Indian Petrochemicals
Petrochemical refining

Bharat Petrochemicals Ltd.
Petrochemical refining

Footprint 2.2 combined
Employee combined
Road 2 combined
Manufactured processed
High speed diesel fuel
Nuclear oil motor spirit
Aromatic
Ethylene
Olefin
Feedstock
Turbine fuel light
Diesel fuel
Inert turbine fuel oil
Base stock
Low sulfur heavy stock
Sulfur
Solvent 2, Erosene

Bhabha Atomic Research Center
Nuclear research

Footprint
Employee
Road
Sterilized irradiated
Medical devices
Sterilized food products
Genetically modified
Botanical cultures
Critical assembly nuclear
Weapons components
Radioactive material and
Special use metals
Elements boron, S, G
O, R, U, I, U
U, E

Aegis Logistics
Logistics handling

Footprint
Employee
Road
Turbine fuel, Erosene
Aromatic
Methanol ethanol
Isobutanol ethyl hexanol
Ethyl benzene, benzene
Toluene, xylenes
Ortho nitrotoluene
N-hexane, cyclohexane
Cumene rubber solvent
Acetone, xylene
Tetramer
Styrene monomer
Ethylene dichloride
Ethyl isobutyl acetone
Monoethylene glycol
Diethylene glycol

Rashtriya Chemicals
Fertilizer manufacturing

Footprint
Employee 2, 2
Road 2
Blended agricultural fertilizers
Anhydrous ammonia
Urea, methanol
Methyl amines
Sodium nitrate
Sodium nitrite
Ammonium nitrate
Ammonium bicarbonate



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har esting clearing dumping



Natural siltation

pollution created

migration caused by pollution from stream



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lamingo
migration
migrating from ann o uch in u arat

because of the
spirulina
cyanobacteria in
saline alkaline
water

pollution created

pollution created



to ic
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umbai

andhurst Road
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productive Landscape

ew cenario

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Cotton reen



informal workers
live in slums with
no access to physical
and legal frameworks for
sanitation and water

introducing
mangrove
hatcheries
to serve as
a natural
filter

water filter
mega
structure



productive landscape

mangrove hatcheries
floating markets
floating villages
floating farms
nesting habitats
for flamingos



new bazaar
and market

goods from the
productive
landscape to be
sold here